Citation classics published in knowledge management journals. Part III: author survey

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Abstract

Purpose – *This paper is the third part of a series of works investigating the top 100 knowledge management (KM) citation classic articles. The purpose of this paper is to understand why KM citation classics are well-cited.*

Design/methodology/approach – *The results of a survey of 58 KM citation classic authors were reported as descriptive statistics and subjected to content analysis.*

Findings – *An archetype of a KM citation classic author was constructed including demographics, personal characteristics, motivation and work preferences. There is a need for developing novel ideas in KM research. Timeliness of a publication is directly linked to its future impact. Editors should involve citation classics authors as reviewers, and KM researchers should improve their citation practices. Serendipity played a very important role in early KM research, especially from the perspective of discovering new and interesting phenomena.*

Research limitations/implications – *Whereas the importance of serendipity is not questioned, future KM researchers should rely more on a formal, meticulous and well-planned research approach rather than on the hope of making a discovery by accident or luck. KM citation classics authors relied on serendipity to form the foundation of the discipline, but extending their work requires formal and structured inquiries.*

Practical implications – *Many authors conducted research to solve a problem to serve the needs of both practice and academia, rather than being overly theoretical.*

Originality/value – *Because KM researchers can no longer rely on past bibliometric theories, this paper helps understand why specific articles are highly cited and recommends how to conduct and develop future KM research that has impact.*

Keywords *Scientometrics, Academic research, Serendipity, Knowledge management, Author survey, Citation classics*

Paper type *Research paper*

1. Introduction

Systems thinking, end in mind; reverse scenario thinking; holistic approach to topics, when I write a sentence, I pretend I'm the reader and then write the sentence for the reader. This process is repeated over and over. My articles are concise, logical, and some say they are like "granola." I'm a firm believer in first authors, namely if some described a concept for the very first time, Maslow, for example, I cite the first article he published. I'm a compulsive reviewer of my manuscripts and have a list of words that are simple and easy to understand. I use different words that have the same meaning so the reader does not get tired of seeing the same word repeatedly. I use bullet points, number the sections of my writing, and make good use of headings. At the end of each article, there are practical applications and/or recommendations so people can decide how to use the content of my articles. (An anonymous author of KM citation classics sharing his/her experience.)

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This paper is the third part of a series of articles investigating the top 100 knowledge management (KM) citation classic articles (Serenko and Dumay, 2015a, 2015b). In the first article, Serenko and Dumay (2015a, p. 401) conclude that the "KM discipline is at the pre-science stage because of the influence of normative studies espousing KM practice" and that "KM is progressing toward normal science and academic maturity." The second article further investigates the KM citation classics to "discover growing, stable and declining knowledge management (KM) research trends" (Serenko and Dumay, 2015b, p. 1335). However, the research unexpectedly discovered "a growing number of citations for all research topics" (Serenko and Dumay, 2015b, p. 1335).

Determinants of citations have been capturing the attention of the academic community since the days science was born. For many scholars, citations represent perhaps the most valuable currency circulating within the "prestige economy" (Blackmore and Kandiko, 2011) because they reflect the degree of one's visibility, status and impact (Balkin and Levinson, 1996; Ayres and Vars, 2000). Given a relative rarity of citation classics, people generally wish to know why these articles are so widely cited and learn about the personal characteristics of their "lucky" colleagues who published seminal works and resultantly achieved a higher position in academic hierarchy. Most people are not able to engage in career coupling (Wagner, 2006) with top scholars, but at least they may learn about their success recipe and benefit from it.

Why articles become so highly cited is a question that citologists[1] continually ask and investigate because it helps answer academics' curiosity and eagerness "to discover who ranks where and to speculate, with mixed tones of admiration, envy, and outright rancor, about the justice of whatever kudos are signified by high citation counts" (Balkin and Levinson, 1996, p. 843). For example, the most cited article in the world is the "Lowry paper" (Lowry *et al.*, 1951)[2] which "reported an improved procedure for measuring proteins" (Pendlebury, 1988). However, when asked why the paper is so highly cited, Lowry commented that "It filled a need in the beginning – and a lot of people measure proteins. Once it became established [. . .] other people may have thought it was the method to use, or at least checked the procedure they were using against it" (Pendlebury, 1988). Since then, other articles have improved on the methods espoused by Lowry *et al.* (1951) (see Bradford (1976)), but the article continues to garner many citations, and it was cited over 5,000 times in Google Scholar in 2015.

Presently, looking at how researchers use citations cannot determine why an article was highly cited in the past and continues to get citations in the future. Furthermore, traditional theories behind examining citation trends are now questionable because Google Scholar is a new variable introduced to the scholarly environment that was absent when bibliometric scholars created these theories (Serenko and Dumay, 2015b). Thus, if we can no longer rely on past bibliometric theories, how can researchers understand why specific articles are highly cited? One way to do that is to study the authors' characteristics and to question the articles' authors because they are a rich information source to answer this question, they are keen observers of the impact the article has on a research field, and they view their "work in a distinctive and not disinterested way" (Small, 2004, pp. 305-306).

2. Theoretical background

To develop the theoretical background for this study and survey questions, the following framework was constructed (Table I). The rest of this section describes this framework in detail.

2.1 Author characteristics

Gender and *age* are the most commonly studied characteristics of the scientific elite (Zuckerman, 1977; Xie and Shauman, 2003; Hermanowicz, 2006). For example, Ayres and Vars (2000) report that articles in top law journals written by female authors are more

Table I The framework

Factor	*Variables*
Author characteristics	Gender, age, education, country of residence, work history, career mobility, teaching experience, training of future researchers, scholarly output, literature awareness, industry-academia orientation, research motivation, collaboration preferences, methodological preferences
Idea	Origin, serendipity, acceptance
Article attributes	Utility, novelty, timeliness
Article impact	On academia, on practice
Follow-up work	Subsequent publications, participation in peer-reviews, tracking citing papers

frequently cited than those written by their male counterparts, and that young (under 36 years) authors accumulate more citations than their older colleagues. Falagas *et al.* (2008) also show that most academics produce highly most cited works between 31 and 35 years of age. However, no such information is available in the KM domain.

It is generally assumed that the authors of citation classics are top scientists holding a terminal (i.e. doctoral) degree. However, because KM is an applied management field, practitioners play a major role in the development of the discipline's body of knowledge. For example, Serenko *et al.* (2010) report that industry practitioners represent around 17 per cent of all KM authors who published in major KM journals, and that their impact was even more influential at the early stages of discipline development.

Serenko and Bontis (2013a) also observe that 16 per cent of KM paper authors do not hold a doctoral degree. Thus, it is important to understand the *educational background* of KM citation classics. It is also important to know the *country of residence* of KM citation classics. A majority of previous studies reported that the USA and the UK lead in terms of the overall KM output (Curado *et al.*, 2011; Dwivedi *et al.*, 2011; Uzunboylu *et al.*, 2011), but are they also home to citation classics authors?

Similar to other professionals, academics are loyal to their discipline rather than their institution and may be characterized as being highly mobile (Brown, 1967). They frequently change their place of work to advance their careers (Ismail and Rasdi, 2006). Generally, citation classics authors are well-recognized researchers who are sought after by many institutions. It is possible that they have worked in many academic institutions and/or public/private organizations in various countries. Therefore, it would be interesting to know more about their *work history* and *career mobility*.

Teaching experience at higher education institutions and *training of future researchers* by engaging in supervision of graduate students have been traditionally considered one of the most important activities of credible academics (Halse and Malfroy, 2010). Both the literature (Lee, 2008) and the authors' personal doctoral program experience suggest that supervisors play the most important role in forming the foundations of future scholars. The supervisor – student relationship is reciprocal; students often generate novel ideas, inspire seasoned academics and embark on risky projects which is especially important for the academic disciplines at the early stages of development, including KM. Citation classics authors are also expected to have a high volume of *scholarly output*. For example, Parker *et al.* (2013, p. 469) empirically demonstrate that "highly cited researchers are also highly productive, publishing on average well over 100 articles each". They should also have a high degree of *literature awareness* because being up-to-date with the latest scientific developments is an important quality of a successful scholar.

Industry-academia orientation is another important factor that may shed some light on the unique state of the KM discipline because it affects authors' *research motivation*. For example, authors may be motivated by a desire to contribute to theory, to advance

practice, or to pursue personal interests (Serenko *et al.*, 2011). Serenko *et al.* (2012) show that practitioner-oriented authors are inspired by the needs of practice, target their work at other practitioners and rely on their previous work experience. In contrast, academically-focused authors are motivated by their desire to create or extend theory, write for other academics and rely on the academic body of knowledge.

It is also important to learn about the *collaboration preferences* of citation classics authors. Serenko (2013, p. 792) argues that "the leading KM researchers insufficiently cooperate among themselves" which may negatively impact the discipline because domestic and international collaboration leads to a higher citation impact (Gazni and Didegah, 2010; Didegah and Thelwall, 2013). In addition, many scholars have their own *methodological preferences*. In KM, the predominant empirical methods include case studies, interviews and surveys (Serenko, 2013), but little is known about the methodological preferences of citation classics authors.

2.2 Idea

Generally, academic research is considered a highly controlled process. Scholars are expected to review prior literature, observe real-world phenomena, identify knowledge gaps, develop and follow rigorous methodology, analyze results and document their findings. However, many KM citation classics were written when there was very limited scholarly literature available on this topic, and many authors were perhaps inspired by other factors. Thus, it would be interesting to know about *idea origin* of KM citation classics and the source of authors' inspiration – was it academic literature, practice, students, or colleagues?

In addition to following a well-structured, pre-planned and formal research approach, scientists occasionally discover important and unique phenomena by chance, error, or accident which is referred to as *serendipity* (Merton, 1948; McCay-Peet and Toms, 2015). The term serendipity was coined by Horace Walpole[3] in 1754 based on the Persian fairy tale "The Three Princes of Serendip" who made unexpected discoveries by accidents and sagacity while travelling (Foster and Ellis, 2014; Silver, 2015). Many important discoveries, such as anesthesia (Holmes, 2009), penicillin (Bennett and Chung, 2001), x-rays (Glasser, 1995), the universal law of gravitation (Miller, 1951) and Viagra (Osterloh, 2004), were serendipitous in nature. However, in addition to an accident or a clue, the researcher's ability to recognize the significance of the event, expertise and motivation are critical factors required to interpret, describe and document the occurrences (Weisenfeld, 2009). For example, osseointegration (the body's ability to establish a direct functional and structural connection between a bone and an artificial implant) was accidentally discovered as early as the 1940s, but it was Brånemark who, after accidentally observing this phenomenon again almost 20 years later, conducted a series of follow-up studies, properly documented his discoveries and proposed their practical use thereby forming the foundation for the modern day dental implant industry (Rudy *et al.*, 2008). Thus, researchers themselves play perhaps the most crucial role in the process of scientific serendipity because a great degree of expertise is required to identify and make use of unexpected phenomena. It is for this reason the presence of serendipity is documented in over 8 per cent of citation classics (Campanario, 1996), and it is also likely to occur in the KM discipline.

The peer-review process, invented over 1,000 years ago (Spier, 2002), is currently considered a *de facto* standard of academic publishing. On the one hand, it is a widely accepted mechanism to ensure certain quality and rigor of published works. On the other hand, the peer-review process has been criticized for its poor reliability, validity, generalizability and potential biases including confirmation and negative results bias (Hojat *et al.*, 2003; Marsh *et al.*, 2008). For example, *Communications of the Association for Information Systems*, a major management information systems journal, recently devoted

an entire debate section to the quality of the peer-review process and possible remedies (Kautz, 2016). Particularly, authors often find it difficult to make reviewers "endorse" unique, novel, unorthodox and contradictory ideas. Because most KM citation classics were published when the discipline was just emerging, they likely fell into the category of "high rejection risk" manuscripts. At the same time, highly cited scientists fare well in peer-reviews; Parker *et al.* (2010) report that over 70 per cent of their manuscripts appear in their journal of first choice. Thus, the reader may wonder about the *acceptance of ideas* expressed in KM citation classics.

2.3 Article attributes

Utility of an academic publication, defined as the degree to which the contribution is useful to others, is perhaps the most important characteristic of a highly cited paper (Small, 2004). Journal editors and reviewers routinely base their acceptance and rejection decisions on the paper's usefulness, and the reader always looks for useful takeaways in every scientific publication. In the KM discipline, journal articles should be useful for both academics and practitioners (Booker *et al.*, 2008; Moshonsky *et al.*, 2014) – academics are interested in theoretical advancement and empirical methods, and practitioners focus on applicable solutions, recommendations and prescriptions that may be used in their organizations.

In addition to utility, both academics and practitioners favor *novelty* of publications, defined as the extent to which the contribution is considered new and ground-breaking (Small, 2004). The key factor that motivates researchers and practitioners to read academic KM works is the search for "golden nuggets" – useful and novel insights that challenge assumptions and change the way people see the world. However, both utility and novelty of ideas fade away unless one considers the paper's *timeliness* – whether the work was published when it was needed the most, not too late and not too early. The reader is definitely familiar with articles that were published too late; these contain obsolete ideas that lack both utility and novelty, and their (best) fate is to become a general (unnoticeable) reference of a well-known concept hidden in the literature review section. At the same time, some articles may be published far ahead of their time and contain ideas unheard of in contemporary scientific circles. Whereas some of such works may create new schools of thought and establish new research directions, others may either remain dormant until the scientific community is ready or be totally ignored and buried in the exponentially growing volume of scholarly output. However, how timely were KM citation classics? Ahead, behind, or in-time?

2.4 Article impact

Utility, novelty and timeliness of an academic publication should lead to its impact on both academia and practice. Whereas many measures of the scholarly impact of academic works have been proposed, only citation counts and various citation-based indices have gained widespread acceptance (Garfield, 1977, 1979). On the one hand, citation classics have demonstrated their citation impact within the KM field. On the other hand, what was their actual scholarly contribution from the personal perspective of their authors? Do the authors believe their works have actually advanced the state of science? Additionally, KM is an applied management discipline, and its research is expected to consider and address the needs of practice (Jennex, 2001; Bennis and O'Toole, 2005; Jennex and Olfman, 2005, 2006). Evidence shows that academic literature, including peer-reviewed journals, is an important mechanism that facilitates the transfer of scholarly knowledge to practice, but its role has been somewhat limited (Serenko *et al.*, 2012; Serenko and Bontis, 2013b). Therefore, it would be interesting to solicit the opinion of KM citation classics authors on the *theoretical and practical impact* of their works.

2.5 Follow-up work

Usually, citation classics authors are highly productive scientists generating a large volume of well-cited output over their academic career (Parker *et al.*, 2013). Regrettably, researchers know little about the life-long career of KM scholars. Ideally, one should envision a KM citation classics author as being a prolific scholar who not only founded a particular line of research but also facilitated its further development by producing *subsequent publications* on this topic. In contrast, there may be one-hit wonders who were lucky to hit the jackpot with a single publication and who never tried to extend it. *Participation in peer-reviews* by reviewing works that build on the author's original ideas is another way to advance a particular research topic. Journal editors prefer selecting reviewers whose works were extensively cited in the submitted manuscript assuming that these are the most qualified and knowledgeable scholars who are fully capable of assessing the scientific merit of subsequent publications (Wang *et al.*, 2010). However, to be actively engaged in scientific research and review processes, one should continuously monitor academic literature by *tracking citing papers* which may be easily achieved with the help of various bibliometric tools, such as Google Scholar. Overall, it would be beneficial to know whether citation classics authors engaged in subsequent research, participated in peer-review processes and tracked the works citing their citation classics.

3. Methodology and results

3.1 Methodology

Based on this study's framework (Table I) and works cited in the section above, an online questionnaire was developed (see Appendix). In the result of an exhaustive online search for contact details of 182[4] authors of citation classics listed by Serenko and Dumay (2015a), 129 email addresses were found. In some cases, co-authors were approached to locate as many authors as possible. Each potential respondent was sent a survey invitation followed by three follow-up reminders. Twenty-six emails bounced back leaving 103 potential respondents. From these, 58 responses were obtained and used for analysis, at the response rate of 56 per cent. The results were reported as descriptive statistics and subjected to content analysis by both authors.

3.2 Author characteristics

3.2.1 General information. In total, 26 and 74 per cent of respondents were female and male, respectively. Their average age was 57 years old, ranging from 41 to 81 years old. In Table II, Serenko and Dumay (2015a) report that the average age of the examined citation classics was 15 years. Given that it takes at least two years to complete the manuscript, undergo a peer-review process and wait for the article to appear in-print, the average age at which the authors did the related work was around 40 years old, which generally corresponds to the early-mid stage of an academic career.

In terms of the highest degree earned, 2, 17 and 81 per cent had an undergraduate, a master's, and a doctoral degree, respectively. Two also received honorary doctorate

Table II Disciplines for degrees earned

Undergraduate	*Master's*	*Doctoral*
Business/Management (31%) Engineering (13%) Economics (10%) MIS/Computer Science/IT (10%) Psychology (8%) Math/Physics (6%) Other (22%): Geography, Linguistics, Political Science, Philosophy, etc.	Business/Management (53%) MIS/Computer Science/IT (12%) Social Sciences (8%) Economics (6%) Psychology (6%) Other (15%): Engineering, Commutations, etc.	Business/Management (64%) MIS/Computer Science/IT (16%) Knowledge Management (7%) Other (13%): Economics, Psychology, Communications, etc.

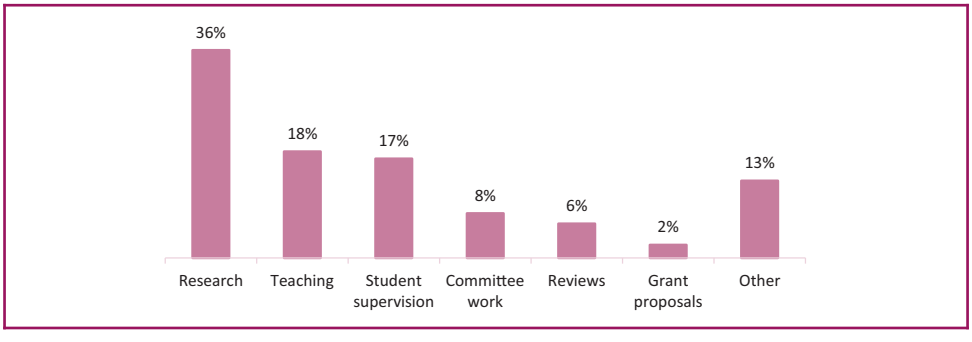
degrees as a recognition of their scientific contribution. According to Table II, as the authors of KM citation classics advanced through their degrees, they tended to move towards business/management (e.g. organizational theory, strategy, human resource management) and MIS/Computer Science/IT areas. A majority of doctoral degrees were obtained in the UK, the USA, Canada, Denmark and Australia. At the date of the survey, most respondents resided in the UK (23 per cent), the USA (17 per cent), Canada (15 per cent), Denmark (8 per cent) and Australia (6 per cent). Since the beginning of their academic research, the authors had worked at 3.5 different academic institutions (universities, colleges, etc.) and had worked in five different countries, on average.

The authors had 18 and 4 years of full- and part-time university/college teaching experience, respectively. Most have substantially contributed to the education of future researchers: 69 per cent supervised undergraduate students; 76 per cent – master's students; 78 per cent – doctoral students; and 33 per cent – post doctoral fellows. Those who worked with doctoral students supervised 14 doctoral students on average, ranging from 2 to 63 students. On average, the respondents published 41 articles in peer-reviewed journals; two-thirds of these articles were accepted in the first journal of their choice after the initial submission. Eighty per cent of the authors published at least one book. On average, each of them published six books. They read 88 and 31 academic and practitioner articles per year on average and attend 1 or 2 academic and practitioner conferences each year. They reviewed 10 journal articles per year.

3.2.2 Industry-academia orientation. The citation classics authors have been keeping close ties with industry. Eighty-six per cent of them published in practitioner journals. On average, each published 35 practitioner articles. On average, they spend two-thirds of their time on academic work and one-third on industry work. Seventy per cent of them have been engaged with industry at least to some degree. Three of them were not engaged in academic work at all. On the scale from 1 to 7 (1 – practitioner; 7 – academic), the average score was 5 – slightly more academic than practitioner. Figure 1 presents the percentage of time spent on several academic activities considering their overall work habits for the past year. Several authors were retired, and Figure 1 does not include their responses. Overall, research and research-related activities, such as mentoring students and postdoctoral researchers, review work and writing grant proposals, consumed two-thirds of their academic time. Other activities included organizing academic events, consulting, administrative duties, editorial responsibilities, etc.

3.2.3 Research motivation. When asked on a 7-point scale about their motivation to publish academic works, the respondents indicated their wish to contribute to practice (5.93), contribute to theory (5.89), contribute to society (5.57) and gain recognition with scientific community (5.35). However, no statistically significant differences were observed among these means ($F(3,212) = 2.072$, $p = 0.105$).

Figure 1 Percentage of time spent on academic work activities



When asked the same question in open form, 30 and 70 per cent of citation classics authors stated they were motivated by the needs of practice and academia, respectively. Most of the respondents from the former group mentioned the needs of their own company or a client, for example:

> The need to find better ways to help first, my employers, later, my clients.

> To make the KM program successful in my company.

Out of those driven by the needs of academia, 45 per cent were initially attracted to KM because it was a new, unique, under-studied and promising field with innovative ideas. Thirty-seven per cent moved to KM from a reference discipline that formed the theoretical foundations for future KM research because they realized that their current field may contribute to KM. The rest were driven by pure intellectual curiosity. For example:

> Knowledge management offered a new area of research for academic community for developing and sharing insights into [. . .] theories and practices.

> Out of data base design and information management, it [KM] seemed like the next logical step.

In total, 47 per cent of the citation classics authors were influenced by the works of other researchers in the field, 27 per cent by their present colleague or co-author and 12 per cent by their supervisor, professor, or instructor. A few were inspired by students or practitioners. Interestingly, of 55 names, only two (Ikujiro Nonaka and Leif Edvinsson) were mentioned more than twice. At the same time, 10 per cent did not attribute their interest in KM to a particular individual – they were inspired by ideas from literature or observations from practice.

3.2.4 Collaboration preferences. In total, 45 per cent preferred collaborating with others, 37 per cent equally favored collaboration and solo work and only 18 per cent tended to work alone. The authors engaged in international cooperation (41 per cent), domestic cooperation (24 per cent), and both international and domestic cooperation (35 per cent). A few of those who preferred cooperation indicated that they still needed to have their personal space and autonomy when being part of a research team. For example:

> I prefer [to] collaborate but with clear tasks and contributions. I mean it is important to have space for working alone in a collaborative project.

> I almost always do things in cooperation, and I like it that way. However, cooperation work does have to give me the feeling that there is an element of working alone inherent in it.

3.2.5 Methodological preferences. In total, 50 per cent tended to publish both empirical and theoretical works, 30 per cent focused mostly on empirical studies and 20 per cent favored theoretical publications. In some cases, theoretical work formed the foundation for future empirical research on the same topic:

> I use conceptual work as the initial publication [. . .] but always look forward to when the work can be empirical to be published.

In total, 25, 36 and 32 per cent preferred quantitative, qualitative and mixed-method approaches, respectively. Seven per cent had no preference.

3.3 Characteristics of articles

3.3.1 Idea origin. Half of the authors came up with an idea for their citation classics during an academic research process. Some of them followed a traditional academic method of inquiry trying to find ideas and gaps in extant literature. Others were somewhat opportunistic – they realized that they were able to apply their knowledge from other disciplines to identify and tackle important KM issues or simply had an opportunity to conduct an empirical study. Some stumbled upon interesting phenomena during their empirical studies and decided to explore them further. For example:

> The idea on knowledge management came through reading books about Quality control and Japanese techniques of using technology for precision.
>
> I had done something similar in technology management and thought it [might be] useful.
>
> Access to over 100 leading British companies enabled the successful completion of this quantitative KM survey.
>
> This article comes from a broader action research project. While we were studying communities of practice, it became obvious that 1) not all were created equal and 2) the conditions under which they were created had an enormous impact on their fate later on. This article really emerged from the data.

Approximately one-third of ideas came directly from practice when the authors closely interacted with industry, participated in KM projects, or observed phenomena that warranted further investigation:

> This was driven because of my work experience and the frustration to practically manage knowledge in the organization.
>
> I became interested in an action research project looking at KM run out of the Boston centre of Ernst & Young and made an organisational investment to participate as a research partner.
>
> During my time in Japan, I noticed work practices differed because of the national economic and cultural circumstances. Later I wondered how these would interplay in the same country with other cultural groups.

Sometimes, ideas were inspired by colleagues, other academics and students. Ideas also emerged during an interactive, collaborative research process:

> I was keen to work with my co-author and the paper emerged from discussions in which we tried to find common ground (albeit embodying a certain creative tension) between our respective fields and interests.
>
> [The idea emerged] over a number of years in my interaction with close colleagues.

Half of the authors said it was their first article on this particular topic, and half indicated it was part of a series of research works. In the former group, there were twice as many authors whose ideas came from practice as in the latter group.

An interesting observation was a high level of intellectual curiosity of the authors who continuously wanted to explore the unknown, for example:

> I love experimenting new management principles/ideas/concepts.
>
> Having a curious mind, I tend to progress into new perspectives and new fields.
>
> This [phenomenon] perked my curiosity as why this was so, why did all the organizations do badly on this. So I reviewed the literature and decided to write this integrative article [. . .].

3.3.2 Serendipity. Half of the authors reported that during the study, they discovered something (e.g. facts, phenomena) they did not initially hypothesize, plan or predict. A vast majority of them reported these unexpected findings in their articles and also believed that this increased the impact of their work. Thus, serendipity played a major role during the research process:

> Researching and co-authoring this article was a voyage of discovery and its conclusions a surprise to me.
>
> We were assuming, based on the predominant thinking of the time, that people don't share their knowledge mostly due to the "knowledge is power" (or knowledge hoarding) phenomenon. We have found that there are many other reasons: fear to mislead the members of the community (doubts about own expertise); lack of understanding of how to share knowledge using the VCoP [Virtual Communities of Practice] tools; lack of understanding how the shared knowledge will be used, etc.

However, a few authors hesitated to report their surprising findings because they did not realize the value of their discovery or decided to explore this line of research in subsequent studies. For example:

> [. . .] only later in the research program did we realize this [value]. Therefore it is not in this article.

3.3.3 Idea acceptance. Eighty-six per cent of the citation classics were accepted when the paper was submitted to a journal for the first time. Those who received a rejection improved the article by addressing the comments and re-submitted it to (usually a different) outlet. For example:

> Took the comments to heart and made a damn good article!

> I rewrote portions of it, in line with both the editor and reviewers comments.

3.3.4 Utility. To understand the authors' perception of the utility of their citation classics, they were asked to comment on the reasons why their article is highly cited. The three major factors pertained to the article's content, timeliness and practical relevance. With respect to content, the leading reason was the authors' ability to synthesize ideas, theories and concepts from various reference disciplines and adapt them to understand knowledge management issues. For example:

> [. . .] it covers the key literatures and core concepts of the time in two previously separate fields of Organisational Learning (Learning Organisation) and Strategic Management (Knowledge Management) in an integrative manner and contains a conceptual extension of the "levels model".

> The paper also reviews the history of the development in the 1970s in communication studies, library science, and social psychology.

> In my case, I know I was doing something novel because I saw a linkage between the state of play in KM and what I had been working on/reading about in marketing.

The next important reason pertaining to the article's content was that it challenged the status quo within the field and questioned previously held assumptions. For example:

> At the point in time when it [our article] was published Nonaka had become a big name in the field of knowledge management, and his work was absorbed rather uncritically by his fans. Our article examines his concept of "ba" in detail, and shows that it is a rather empty concept. Hence, we find that the critique voiced in the paper was important for its picking up of citations.

> [Our article] challenged the then orthodoxy of codification and the SECI model.

> It provided counter-intuitive findings when it came to management of knowledge in SMEs when compared to larger organizations.

Other reasons that related to the article's content were clarifying inconsistencies in literature, providing foundation for future research, taking a holistic approach to the issue, supplementing arguments with personal experience and filling gaps in knowledge:

> Its main value is clarifying the basic dimensions of the field of research. I mean providing some points of reference or benchmarks to understand a concept which was confusing.

> It lays the foundation for how to structure work in this field, and where to find research foci. It is cited because we picked up on new directions and viewpoints of knowledge management that turned out to manifest.

> It has a rather broad scope [. . .] rather than a narrow focus on a few variables.

> My article was based on work and academic experience, not just research.

> It went to the frontier of knowledge to identify a gap which it systematically filled with a validated theoretical model.

The second factor was the timing of publication because the article appeared at the embryonic stage of development of KM as a field of study or because it was the first to introduce an important idea that was recognized and applied in subsequent investigations:

> It was published early in the development of the subfield it relates to [. . .] and there were few other contributions for scholars to build upon.
>
> [It] was a rather timely article, as it appeared in print at a point in time where the field of Knowledge Management was in the process of becoming more advanced, in particular in terms of the theories applied.
>
> It brought together a couple of concepts - KM and performance management – for the first time.
>
> [. . .] because they were published relatively early in the cycle of thinking about the subject.

Practical relevance was the third important factor that contributed to the success of the publication. Such works were often inspired by the needs of industry, offered practical recommendations, and were useful from the applied perspective. For example:

> We were able to focus on a practically important issue that was also important theoretically [. . .] the initial research question was brought to us by the practitioners, and then we have developed specific questions, collected and analyzed the data, and wrote the articles in collaboration with practitioners.
>
> [. . .] companies struggle to make KM successful. Leaders look for some in-process and outcome metrics to drive any initiative and this article explained how a program like KM could be quantified and driven through BSC [balanced scorecard].

There are other factors mentioned less frequently, which nevertheless warrant attention. These include:

- The validation of the argument, theory, idea, etc. with the application of a solid empirical method, including a survey, interview or case study:

  > The article is also backed up by a quantitative study as well as a "case study."

- The accessibility of the article because it was well-written, logically structured, clear and targeted at the appropriate audience (also see the quote in the beginning of Section 1):

  > Because it was well-written and presented analysis and conclusions in an accessible way.
  >
  > My article was [. . .] conveyed in a logical, easy-to-understand manner.
  >
  > I think the paper was written with less academic jargon [. . .].

- The appearance of this article in a major KM outlet that is widely read by KM academics, especially when it appeared in its first volume/issue:

  > It was the first paper published in a major KM journal on this topic. Later, I realized there were a few papers on this topics that had been published before, but they did not attract attention because they were not published in mainstream KM journals.
  >
  > In any field articles in the first issue of the dominant journal in the field tend to receive high citations.

- The receipt of a conference or journal award that informed a larger audience about the value of the work:

  > [. . .] it helped that the article got the Literati Outstanding Paper Award for best paper published in Journal of Knowledge Management.

- Scholarly reputation of one of the authors:

> Because [my co-author] is a preeminent academic in the field.

3.3.5 Novelty. A majority of respondents stated that their article describes a new theory, concept, or idea that is useful to others:

> It describes a new concept/idea that encourages us to look at [knowledge transfer] barriers across all levels.

A few emphasized the development and demonstration of a novel empirical method in KM research:

> We develop[ed] new instruments to measure theoretical constructs that have been very useful to the progress in the field.

At the same time, almost a half of the authors reported that they heavily relied on reference disciplines as a source of knowledge, and that they extended, synthesized and applied knowledge from other disciplines to understand KM-related phenomena. For example:

> In two ways: it synthesises work from two related fields - strategy/knowledge management/ alliances and organizational behaviour/organizational learning/inter-organizational relations. Secondly, it extends an existing OL [organizational learning] framework by applying it to inter-organizational contexts.

> The paper presents a theory of learning drawn from analogies in the complexity sciences, American pragmatist sociology and European process sociology.

3.3.6 Timeliness. In total, 57 per cent of the authors believed their article was published in the right moment when the topic just started to attract the attention of the research community, and when there was a need to bridge a growing gap in the knowledge in a particular area. For instance:

> [. . .] it was timely. The concept was just gaining currency in the literature. And it represented a modest attempt to set out some parameters for future research.

> We were lucky with timing. [We] published a popular article at a time when interest in the topic was increasing.

In total, 43 per cent of the respondents indicated their work was ahead of its time, for instance:

> As most of my work, the articles may have been ahead of its time! (As was my introduction of the term "Knowledge Management" to a UN-ILO [United Nations International Labour Organization] conference in 1983).

> Well ahead of its time - by a decade+.

Several respondents emphasized the difference in the timeliness in terms of the type of audience – KM academics, KM practitioners, or scholars from other fields. Particularly, they indicated that, at that time, academic KM research was lagging behind practitioners and other scholarly disciplines:

> Ahead of its time for academics but not for practitioners.

> It was ahead of its time in KM literature but [such research] had been conducted previously in other fields.

3.3.7 Impact. When asked whether their article has been useful for academics, practitioners, or both, 70 per cent reported that their work made an impact on both academia and practice, 21 per cent only on academia and 9 per cent only on practice. Overall, the authors of four of five KM citation classics believed in the practical relevance of their publication. For instance:

> I have specific evidence that it was useful for practitioners: our partners from the business organization where the study was conducted report numerous benefits and practical applications of the study results in their work. And over the years I have been contacted by

> numerous academics from all over the world with follow-up questions and requests for assistance, which suggests that they have found the articles useful.
>
> I believe the articles are useful for practice because [. . .] these articles talk about the interactions between practice that involve both technologies and human minds.
>
> At the time intellectual capital and intangibles thinking did not include social citizenship, industry relationships and environmental responsibility. I encouraged KM practitioners to take this larger view of business as it relates to society.

In addition, many authors emphasized both theoretical and practical contribution of their work.

> Other researchers are picking up on this line of research to explore knowledge management in a variety of contexts.
>
> It provided a great overview of the literature and has been useful for researchers entering the field as well as practitioners of knowledge management.
>
> It presented a practical framework for evaluating the take up of KM in an organisation; it aimed to put a theory to practical use.
>
> Good impact, both in academic and practical terms (including collaborations with firms to develop their knowledge management practices and instruments).
>
> [It] provided a working knowledge of concepts being put into practice under a variety of functional disciplines and across industries.
>
> The study results were used in improving the way the KM professionals in the studied organization support CoPs [Communities of Practice], and we heard from many practitioners and academics who have used our ideas in their work.
>
> It resulted in the development of the Most Admired Knowledge Enterprises (MAKE) framework and model.

At the same time, some respondents were not aware whether this work has made any difference beyond becoming a mere citation in follow-up publications, for instance:

> Difficult to say what contribution it has made other than academics cite it favorably in some good journals.
>
> I don't know what difference it has made other than to provide a citation resource for subsequent papers focused on the intersection of these ideas.

3.3.8 Follow-up work. In total, 66 per cent of the authors continued working on the same topic after publishing the paper that later became a citation classic. Overall, 80 per cent produced more than one academic work on this topic; usually, it resulted in a long-term line of research. As such, their citation classic paper often served as a springboard for future studies, collaborative projects and formal research programs, for example:

> 2 PhD graduates and 1 final year plus the articles and book chapters [. . .] Also, in the School we now have a Database and Knowledge Management Research Group to which I belong.
>
> I incorporated the perspective into a business modeling method, value network analysis that has become accepted as the most commonly used modeling method for value creating networks. The approach has been used to evaluate regional innovation networks and has been embraced by global corporations such as Boeing.
>
> [I] have published a range of articles on different aspects of KM, [and I] have published a popular and well respected textbook on the topic. I feel I have become a respected name in the field and am regularly asked to be external examiner for relevant PhDs etc.
>
> 8 books, hundreds of articles and keynote presentations in 44 countries.

The observations above contradict Lotka's Law (Lotka, 1926) stating that 80 per cent of all scholars contribute only once to a particular body of scholarly knowledge. This further

confirms that citation classics authors are prolific researchers who consistently produce academic works.

Half of the authors have never been asked to review manuscripts that cite their citation classics. If they receive reviewing invitations, such requests arrive only a few times per year. They also occasionally read papers that cite their citation classics. Only 10 per cent of the authors regularly read the citing works, whereas 20 per cent do so very rarely or never. In total, 30 per cent monitor where their article is cited; most of them do so occasionally and sporadically with the use of online tools such as Google Scholar, Research Gate, Academia.edu and electronic alerts; 30 per cent are also aware of the key reasons why other researchers cite their article. Most of them believe that, in general, other scholars correctly cite their work to substantiate their arguments, hypotheses and definitions. Nevertheless, some of them admitted the possibility of incorrect citations, for example:

> Sometimes it is cited correctly, but I have seen (often as a reviewer) how it is incorrectly cited. I would say very often others just put the citation into their paper without reading my original source. I can see it and laugh at them. Correct them as a reviewer.

A few also admitted the possibility of their citation classics becoming outdated, and that current citations to the work are based on rhetorical convenience, whereby writers cite well-known authors because they assume readers will recognize the author as an authority. Thus, the current citations rhetorically appeal to the authority of the author (*ethos*) rather than to the logic (*logos*) of the argument (Nørreklit, 2003, p. 598). For instance:

> Its results have no validity today. In a similar manner, very early literature searches of KM articles are cited as a starting point for future KM research.

> It's generally used as one of those historical benchmarks people cite when reviewing developments in a field.

A majority of the authors believed that the ideas expressed in their articles have formed the foundation for future research. However, these ideas have not stayed unchanged – they have been extended and eventually transformed into other (yet related) lines of research. Most were also very optimistic about the future sustainability of the line of research based on their citation classics, but, again, they indicated that these ideas will continue to develop, change, and evolve:

> Yes it has evolved over time with further work and insights into [. . .] other fields.

> By incorporating these perspectives into value network analysis [. . .] KM slid rather gracefully into business modeling and thus found an even larger audience appreciating the flows of knowledge and intangibles [. . .] It is very gratifying to see those seeds sprout and grow.

> As with any new idea, it gets expanded, adapted and applied in different contexts.

Some authors, however, had a different opinion, and they believed that the original ideas expressed in their articles have no future application, and, therefore, their articles should be no longer cited:

> I think that the idea [. . .] is probably a fashion and, thus, its popularity will most likely decrease after some years/decades.

> It belongs to an era when managers believed you could control people's behaviour and knowhow through performance management instruments. This is unrealistic in light of contemporary understanding that cognitive instruments of "measuring performance" don't take account of emotional data and people's lived experience. I have since shifted my professional practice to studying groups and organisations as psychodynamically related systems.

4. Implications

4.1 Implication No. 1: an archetype of a knowledge management citation classic author

There is no doubt that we, fortunately or unfortunately – depending on the reader's academic views, live in a "publish or perish" academic world where scholars base their

careers on where they publish and on the impact of their research (de Villiers and Dumay, 2014). Thus, it is of interest to current KM scholars as to what it takes to become a citation classic author. This study's findings help to create an archetype of a potential KM citation classic author (Table III).

Beyond this archetype, we also find these authors to have strong ties with industry. Many authors:

- attend practitioner conferences;
- publish in practitioner journals;
- are engaged in industry projects;
- want to contribute to both theory and practice by producing research that is both academically and practically relevant; and
- get their article ideas from practice.

All too often researchers are criticized for sitting in their academic "ivory towers" and producing research that is irrelevant to practice. A typical KM citation classic author is the opposite. Most authors did research to solve a problem to serve the needs of both practice and academia, rather than being overly theoretical. In both instances, the authors wrote the majority of articles when KM became a hot new topic, and these articles became citation classics because the authors wrote the articles at a time when there was a thirst for knowledge about KM as an emerging field. Additionally, the authors of most KM citation classics believed that their article made an impact on the state of practice.

The good news for current KM researchers is that there are still many opportunities to write future KM citation classics because KM is still at a pre-science stage because many of the citation classic articles are normative studies (Serenko and Dumay, 2015a). Thus, there is a need for more studies examining the actual impact of KM practices. Some recent examples of articles exploring the impact of KM practices using surveys and structured equation modeling are Mills and Smith (2011) and Andreeva and Kianto (2012). Similarly, Massingham and Massingham (2014) examine the practical outputs of KM practice in the Australian public sector context. These articles appear destined to be future KM citation classics because they are currently garnering more citations than other articles published at the same time.

While there is a need for more articles linking organizational performance to KM practices, there is still a need for more normative studies outlining future KM research

Table III An archetype of a KM citation classic author

Demographics	*Personal characteristics*	*Motivation and work preferences*
About 40 years old; a PhD in business, management, MIS or computer science obtained in an English-speaking country; an early-mid career researcher not necessarily from a KM background; international work experience in several institutions	somewhat opportunistic; a high degree of intellectual curiosity; challenges the status quo and questions assumptions; able to recognize the value of unexpected findings; persistent when facing a rejection; writes for the target audience; fares well in peer-reviews	a very prolific author consistently publishing many academic articles and books; well aware of literature; attends academic conferences; actively engaged in scholarly activities (research, teaching, supervision and peer-reviews); came to KM from a reference discipline because of the field's novelty and uniqueness; inspired/influenced by works of others; collaborates domestically and internationally; publishes both empirical and theoretical works; extends, synthesizes, and applies knowledge from reference disciplines

avenues. For example, Durst and Edvardsson (2012) and Massaro *et al.* (2016) outline the need for more research into small and medium enterprises because there is a need to understand KM practices in smaller firms that do not have the same economic and human resources required to undertake formalized KM programs. Thus, researchers should first produce normative articles addressing significant research gaps which others should follow up with research examining practice (Guthrie *et al.*, 2012; Dumay and Garanina, 2013). Other under-studied areas warranting further investigation are the negative consequences of KM, unlearning concepts and evidence-based KM theories (Serenko, 2013).

4.2 Implication No. 2: the need for developing novel ideas in knowledge management research

An important outcome of our research is the discovery that many authors stumbled upon the ideas during their research. Many researchers make great discoveries accidently, and often the discoveries are more a result of good luck than good management. While there is no doubt about the role serendipity plays in making new discoveries (Merton, 1948; McCay-Peet and Toms, 2015), there is also a role for focused understanding of what is driving KM practice to understand what warrants developing interesting and new research agendas. All too often academics base their research on interesting ideas they discover from reading the citation classics, but this results in what Dumay (2014, p. 1258) terms "copy cat research" which "does not truly advance knowledge because the results of these studies are incremental at best" (Alvesson and Deetz, 2000, p. 50). Therefore, the main question is how do KM researchers discover new and interesting ideas for future citation classics?

One answer is for researchers to concentrate on how novel their research is before commencing their next research project. What is novel is not easy to determine before a KM researcher commences a project or writes an article, and sometimes researchers only discover the novelty after the research is complete. As Siggelkow (2007, p. 20) argues, if you find a "talking pig", this is sufficiently novel and unexpected to warrant the publication of preliminary research findings around this phenomenon. However, it is first important to recognize the value and uniqueness of the discovered "talking pig". Second, merely finding a "talking pig" without a plan means that most KM researchers will struggle to write a classic article. Therefore, researchers need to pay more attention to both the uniqueness of their findings and to the approach they use to discover new and interesting topics to write about.

One way to discover a "talking pig" is research into KM practice. It is fortunate that there is a heavy practitioner involvement in KM research, and the research findings support the argument that many citation classic papers involve solving practical problems. While none of our citation classic articles talk about interventionist research (Suomala, 2009), it is increasingly becoming popular in the related field of intellectual capital (Chiucchi, 2013a, 2013b; Chiucchi and Dumay, 2015). Interventionist research is where academics collaborate with practitioners and/or managers to solve real-world problems, and the solutions are theoretically driven and analyzed. While some of our classic articles use action research, they are devoid of theoretical contributions, which are currently a key criterion for top-tier journal publications. Thus, applying interventionist research methods is a novel way of discovering a KM-based "talking pig" which may lead to writing a new citation classic because according to our citation classics authors, most of these new ideas are readily accepted by reviewers and editors.

4.3 Implication No. 3: timeliness creates impact

Another implication related to the need for novelty is the timeliness of the research. Timeliness means that KM researchers need to look for the issues driving current

practice rather than jumping on the proverbial bandwagon of the latest hot topic. In essence, KM researchers need to find interesting ideas before they become "hot topics" in academia. For example, examining articles published in the business press in from March to June 2016 using the Factiva news database reveals several newsworthy hot topics related to KM being domestic politics and managing partnerships and collaborations. Additionally, newsworthy articles emanate from several different industries, such as computers and consumer electronics, cloud computing, banking and credit, nuclear power and waste management and recycling. However, searching for these terms in the title and keywords in the *Journal of Knowledge Management* reveals few academic articles, especially on the topics of waste management and recycling. Thus, considering the interest in organizational sustainability, waste management and the recycling industry, one could arguably form the basis of an interesting case study on implementing KM.

The above example highlights how it is possible to discover potentially new "hot topics" in KM because practice often leads academia. However, if a KM researcher with the right attributes investigates and writes up practice-based research on novel and hot topics, the resulting article will arguably have a better chance of publication as well as becoming a citation classic. Thus, KM researchers should expand their horizons beyond traditional KM research topics and industries.

4.4 Implication No. 4: editors should involve citation classics authors as reviewers more frequently

Generally, the authors of KM citation classics are heavily engaged in the peer-review process by reviewing on average ten journal articles per year. However, half of them have never been invited to review manuscripts that cite their citation classics and presumably extend their work. Journal editors and conference organizers face a challenging task referred to as the reviewer assignment problem because, first, the reviewers must have competence in a given research area, and second, they must be interested in reviewing the submitted work (Hartvigsen *et al.*, 1999; Wang *et al.*, 2010). As all seasoned academics (including the authors of this paper) have learned the hard way, failing to secure a competent, motivated reviewer usually leads to a scientific disaster – the rejection of a manuscript that should be accepted or the publication of an article that should be rejected (Starbuck, 2016).

The authors of citation classics meet both criteria of the reviewer assignment problem – they are competent and interested to learn about others' extension of their work. Given that citation classics attract hundreds of citations, it is surprising to observe that half of the authors have never been approached by an editorial team of any academic outlet. Thus, KM journal editors should be more diligent when selecting referees and consider citation classics authors in their reviewer assignments.

4.5 Implication No. 5: knowledge management researchers should monitor and improve their citation practices

Problematic citations are an ongoing problem in academic publishing in all disciplines (Todd *et al.*, 2007, 2010) including KM where 18 per cent of citations provide no support of the claim, 8 per cent offer ambiguous support and 4 per cent are simply copied from a secondary source (Serenko and Dumay, 2015b). The authors of KM citation classics also reported that their works are occasionally cited incorrectly. Some also felt that the ideas expressed in their citation classics have evolved or become outdated and should no longer be cited. However, all of the examined classics continue attracting citations at a relatively steady pace, which questions the rigor, quality and even ethics of at least a small proportion of KM researchers.

Editors and reviewers also have a role to play by monitoring the correct use of citations. What we need is to avoid rhetorical convenience whereby authors cite the classics because they assume readers will recognize the classic authors as a KM authority, even though the authors do not follow the ideas found in the classic articles. All too often reviewers do not check the validity of citations as part of the review process, which allows authors to cite known names and papers to show that they are at least aware of the citation classic rather than being transparent about how the classic articles have bearing on the author's research. However, the authors and reviewers are not always responsible for encouraging the incorrect use of citations, because as Serenko and Dumay (2015b, p. 1346) outline, editors specifically ask reviewers "Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?" Thus, editors need to ask different or additional questions, such as "Are citations to past research relevant to the research context? Are literature sources cited correctly? Do the authors demonstrate true understanding of prior works?".

By asking the former questions, editors are encouraging researchers to include citations with no bearing on their research. The encouragement is equally as questionable as a reviewer insisting specific citations are included in a paper. For example, should we include articles in this paper which did not have a bearing on our research because an editor or reviewer encouraged us to do so, then we are in effect being unethical. Including these extra citations is unethical because we are doing so in an effort to publish, rather than presenting our research as a reflection of how we carried out the research project. However, it is worthy to note that not including these suggested citations does not mean the paper is not publishable. Authors need to convey a message, as this paper's co-author recently replied to a similar suggestion from a reviewer, to argue that because he was not aware of the suggested citation and never used the article in his research, it would be unethical to include the suggested paper as a citation and reference. The paper was eventually accepted for publication.

5. Conclusion

When reflecting on how to conclude this paper, the authors were struck by the serendipity involved in KM research, especially from the perspective of discovering new and interesting results that are the basis of the KM citation classics. It is true that researchers should never preconceive what they will find, and the serendipity of discoveries is an important factor in disseminating the impact of KM research.

How KM researchers conduct their future research projects is important because of Serenko and Dumay's (2015a, p. 401) original finding that "the KM discipline is at the pre-science stage because of the influence of normative studies espousing KM practice" and that "KM is progressing toward normal science and academic maturity." Each discipline progresses from the pre-science stage, where it borrows ideas, theories and methods from other disciplines, to the state of normal science, when it creates its own original knowledge and infuses it into other domains (Kuhn, 1962, 1977). KM was in a unique position when it initially appeared because KM- and IC-related concepts virtually did not exist and needed to be invented. This is where serendipity played a critical role, and KM citation classics authors used their sagacity to recognize the value of their discoveries and document them. However, as KM progresses towards normal science, serendipity is expected to play a lesser role in the scientific research process. Whereas the importance of serendipity is not questioned, future KM researchers should rely more on a formal, meticulous and well-planned research approach rather than on the hope of finding a "talking pig" by accident or luck. KM citation classics authors relied on serendipity to form the foundation of the discipline, but extending their work requires formal and structured inquiries. However, how KM

researchers take their research into a normal science and academic maturity is essential, because if we leave novel and interesting discoveries mainly to serendipity and do not deliberately challenge the ethos of the citation classics, then there is a good chance that KM researchers will discover little new knowledge. What KM needs is a systematic methodology for developing new discoveries, rather than relying mainly on serendipity.

We also recommend KM researchers to look into the use of the interventionist research methodology. It involves researchers moving away from the normative arguments that are symbolic of the pre-science stage of KM research, into critical research that develops insights into KM in practice. As we advocate in this paper, there needs to be more of a move to interventionist research where KM researchers work alongside practitioners in developing KM solutions, rather than sitting in academic ivory towers observing from above. Researchers also need to get more involved in practice because unlike other scientific endeavors KM researchers cannot experiment with KM in a laboratory wearing white coats and carefully observing and recording the results. For a KM researcher, the companies and institutions that implement KM in practice are the laboratories suited for experimenting with KM practices. By experimenting, we do not mean to take any risks that can endanger the organization should the experiment not be successful, but more to experiment with new ideas and technologies that challenge existing ideas and different contexts. As we outlined earlier, it seems that KM research lags practice, and by understanding where practice is before designing another KM research project, KM researchers can break free from the dominance of comfortable research paradigms which may already become redundant because the research borders on the fringes of past research rather than the bleeding edge of current practice. The normative nature of many KM citation classics backs up the argument for more practice-based research, and this research needs to critique rather than accept these normative arguments. As one of our citation classics authors outlined, the idea is to challenge existing ideas and paradigms, and the ability to critique entrenched practices and knowledge is an important attribute of what we see as a future KM classic author.

Because KM is a management domain by nature and definition, we argue it is necessary to use a managerial inspired critical framework for developing research. One framework is Alvesson and Deetz's (2000, p. 17) critical management framework of insight critique and transformative redefinition, as they explain:

> The insight task demonstrates our commitment to the hermeneutic, interpretive and ethnographic goals of local understandings closely connected to and appreciative of the lives of real people in real situations. The critique task demonstrates our commitment to the analytical aspects of critical traditions which recognize the possibility of domination in local formations and to reconnect local forms and meanings to larger social, historical and political processes. The transformative redefinition task demonstrates our commitment to the more pragmatic aspects of critical thought, recognizing that insight and critique without support for social action leaves research detached and sterile.

If there is one simple objective for KM researchers, it arguably is to ensure that KM research never becomes sterile. It must be driven by critically thinking about what our research may potentially contribute to new KM practices and be appreciative of the real workings of KM, rather than pressing further normative rhetoric about KM's benefits. Normative research certainly and rightfully had a firm place in pre-science KM, but its influence must diminish and be overtaken by critical thinking about KM practices so we can outline the "social actions" required to build KM from its pre-science to normal science. While serendipity has its place in discovering new knowledge, it has less ability to question the status quo or normative arguments, and thus it too must diminish (but not disappear) in its impact on KM research.

Notes

1. "Citology, the study of citations, should not be confused with 'cytology', which is the biological study of cells" (Balkin and Levinson, 1996).
2. As on 27 February 2016 the Lowry *et al.* (1951) article had 195,373 and 325,412 citations in Google Scholar and Web of Science, respectively.
3. It is possible that Horace Walpole relied on the works of Francis Bacon when coining the term serendipity (Silver, 2015).
4. Serenko and Dumay (2015b) identified 183 unique authors. However, one of them is the author of this study and thus is not included in the pool of potential respondents, making a pool of 182 authors to choose from.

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Appendix

Table AI Online questionnaire

Factor	*Question*
Author characteristics	Instructions: The questions below pertain to your work, personal, and social characteristics
Gender	What is your gender?
Age	What is your age?
Education	In what area was your undergraduate degree? (if any) In what area was your master's degree? (if any) In what area was your PhD? (if any) Where did you complete your PhD? (if applicable)
Country of residence	What is your primary country of residence?
Work history	Since the beginning of your academic research, at how many academic institutions (universities, colleges, etc.) have you worked? Considering your overall work habits for the past year, what percentage of your time do you spend on the following academic activities (needs to add to 100%)? Options: conducting research (writing academic manuscripts, reading academic publications, collecting data, doing experiments/analyses, revising papers, etc.); mentoring students and postdoctoral researchers; reviewing manuscripts and grants; writing grants; teaching; committee work; other (please specify)
Career mobility	Since the beginning of your academic research, in how many countries have you worked?
Teaching experience	How many years of full-time university/college teaching experience do you have (if any)? How many years of part-time university/college teaching experience do you have (if any)?
Training of future researchers	During your career, how many students have you supervised? Options: Undergraduate; Graduate – Masters; Graduate – Doctoral; Post-doctoral
Scholarly output	How many academic (peer-reviewed) articles have you published? What percentage of your manuscripts gets accepted in your journal of first choice? How many books have you published? How many practitioner articles have you published?
Literature awareness	How many academic articles do you read per year on average? How many practitioner articles do you read per year on average? How many academic conferences do you attend per year on average? How many practitioner conferences do you attend per year on average? How many academic articles do you review per year on average?
Industry-academia orientation	In the past 12 months, what percentage of your working time did you spend on academic work and industry work (out of 100%)? On the scale from 1 to 7 (1- practitioner; 7-academic), what are you? (scale: 1 – Pure practitioner; 2 – Mostly practitioner; 3 – Slightly more practitioner than academic; 4 – Equally academic and practitioner; 5 – Slightly more academic than practitioner; 6 – Mostly academic; 7 – Pure academic)
Research motivation	The four questions below pertain to your motivation to publish academic works (e.g., articles or books). Please indicate your level of agreement with these statements. (scale: 7 – strongly agree; 1 – strongly disagree): I publish academic works because I want to contribute to *theory* I publish academic works because I want to contribute to *practice* I publish academic works because I want to contribute to *society* I publish academic works because I want to *gain recognition within scientific community* Initially, what factors motivated your interest in knowledge management research? Which individuals (e.g., supervisor, colleagues, other researchers) influenced your knowledge management research?
Collaboration preferences	When you do academic work, do you prefer working alone or cooperate with others? If you cooperate with others, are they located in the same country as you are or different countries?
Methodological preferences	Do you prefer publishing conceptual works, empirical works, or both? When you work on empirical studies, do you favor quantitative, qualitative or mixed method approaches?
Idea	*Instructions*: The questions below pertain to your article that we identified as a citation classic. Please recall that we provided the title of this article in the email invitation we sent you
Origin	How did you come up with an idea for this article? Was it your first article on this particular topic or was it part of a series of research works? If it is part of a series of works, can you please identify the related publications?
Serendipity	During this study, did you discover something (e.g., fact, phenomenon) that you did not initially hypothesize, plan, or predict? If yes, did you report it in the article? Did it have an impact on the significance of this work?

(*continued*)

Table AI

Factor	*Question*
Acceptance	Did your article report controversial ideas? If so, were the ideas immediately accepted? When you submitted this article to a journal first time, was it accepted? If not, what did you do?
Article attributes	
Utility	Why do you think your article is highly cited? Could you summarize the significance of your article in layman's terms? What difference did it make?
Novelty	Does your article describe a new theory, concept, idea or methodology that's useful to others?
Timeliness	How timely was your article? Was it ahead of its time?
Article impact	
On academia	Do you think your article has been useful for academics, practitioners or both?
On practice	
Follow-up work	
Subsequent publications	Did you continue working on the same topic after publishing this article? If yes, what was the overall output and impact of this line of research?
Participation in peer-reviews	Have you ever been asked to review manuscripts that cite this article? If yes, how often do you do so?
Tracking citing papers	Do you read papers that cite this article? Do you monitor where this article is cited? If yes, do you do this regularly? Do you know the key reasons why other researchers cite this article? If yes, do you think the follow-up researchers correctly cite the ideas expressed in your article? What is the future for the topic/issue/idea presented in your article? How has it evolved over time?
Other	If you wish, you may provide additional information about your articles, work preferences and personal characteristics

Notes: The questionnaire above was administered to those authors who published only one article identified as a citation classic; those who published two or three citation classics completed a modified version of the questionnaire where they had an option to discuss each article individually or all of them at once

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